

# MEDICAL EXAMINER.

DEVOTED TO MEDICINE, SURGERY, AND THE COLLATERAL SCIENCES.

No. 22.] PHILADELPHIA, SATURDAY, MAY 30, 1840.

[VOL. III.

## LECTURES ON THE EXPLORATION AND TREATMENT OF DISEASES OF THE CHEST.

BY W. W. GERHARD, M. D.

### LECTURE IV.—Percussion—Rationale—Mode of performing—Pleximeter—Division of Chest into Regions—Value of Percussion.

WE now come to a highly important part of the subject—this is, percussion, or the method of estimating the density of the viscera contained within the thorax, by tapping lightly upon its surface. The rationale of this is very simple: The lungs occupy the greater part of the thoracic cavity, and are filled with air. If percussion be made upon them when removed from the body, they yield a very clear sound, especially if a solid yet elastic body be laid upon them, which may receive the impulsion of the striking body, and prevent it from sinking into the soft pulmonary tissue. Now, this elastic body, or sounding-board, exists naturally in the thorax, and is formed by ribs and cartilages; and a light tap upon their surface, that is, on the exterior of the chest, gives a clear, full, hollow sound. When the patient is thin, and the skin is very sensitive, he will not bear a smart tap without inconvenience; and, on the other hand, if he is very corpulent, or if the subcutaneous cellular tissue be infiltrated with serum, the sound will be quite dull, and will not truly represent the condition of the internal organs. In order to prevent this chance of error to the observer, and inconvenience to the patient, we interpose an additional elastic body between the chest and the end of our finger. This interposed body is called a pleximeter, and was invented by Dr. Pierry. Its only utility is to increase the body of sound, by giving more resonance to the elastic parietes of the chest, and to prevent the direct impression of the fingers upon the chest of the patient. Though the ribs are an excellent natural pleximeter, they are too sensitive at times, and at others are rendered useless for physical exploration, by the softer subcutaneous deposits. By applying an artificial pleximeter we not only increase the fitness of

the natural sounding-board, if we may so call it, but we bring it into play, by compressing, and, as it were, thrusting out of the way the tissues which impede its vibrations, and then we gain the important advantage for ourselves and our patients of preventing pain, or perhaps mischief to the disease. The only method of performing percussion which is now practised, is that by means of the pleximeter. It has so many advantages over immediate percussion, or the striking with the ends of the fingers directly upon the chest, that it is much better fitted for every purpose.

The pleximeters used are various; that is, those that may be used; for, practically, they are reduced nearly to the most natural pleximeter, that is, the forefinger of the left hand. But if you choose, you may make use of a piece of gum elastic, of ivory, or of metal. You take this in the fingers of the left hand, and hold it firmly upon the chest, afterwards percussing in the usual way with the right hand. If it be not applied firmly against the chest, a clacking sound is immediately produced by the air which is interposed between the instrument and the skin: this clack cannot be entirely obviated, for the tap upon the instrument will of course give rise to sound. If the material be very dense, the sound will be sharp and decided, and interfere a little with the pulmonary sound, that is, the resonance developed by the tissue of the lungs; for this reason there are some advantages attending the use of the gum elastic pleximeter, rather than an ivory or metallic one, which is harder, and of course gives rise to more sound. The elastic instrument was, I believe, first proposed by Dr. J. B. S. Jackson, of Boston, and is the most convenient. You can readily enough make one for yourselves, by taking a common piece of gum elastic of the flat kind, about a quarter or a third of an inch thick, and about two inches square, that is of a size convenient for holding in the fingers. The density of gum elastic is more nearly similar to that of the chest, than a harder material, which is an additional reason for its employment, as it

contributes to give it a clear, uncomplicated sound.

The gum elastic pleximeter is simple, but all of you are provided with one which is much more simple, and which you see me resort to—it is the forefinger of the left hand. In thin persons, the finger is even more bony and elastic than the ribs; in those who are fatter, or whose hand is remarkably stout and covered with a thick skin, the finger loses its elasticity, and is not so well fitted for the office of pleximeter. Still, under ordinary circumstances, it is the best one which you can employ, and is superior to any of the ordinary artificial instruments, from its ready adaptation to different parts and irregularities in the chest. The finger may in this way be placed behind the clavicle or below it, and be brought very near the lung, which could not be done with a broad and flat plate: any single limited spot may be examined in the same way with great ease. This natural pleximeter may be used in two ways: you may apply the dorsal or palmar surface upon the chest, and of course tap upon the reversed side; if you apply the palmar surface upon the chest, the dorsal side upon which the percussion is made is firm, and gives a sharp clear sound; it is much better, therefore, for the accurate appreciation of slight deviations from the natural standard. The palmar surface is occasionally more convenient, especially when it becomes necessary to apply the finger to the depression behind the clavicle,—it is of course better for this purpose that the finger should be curved to fit this depression; hence, percussion must be made upon the palmar surface. Much of this nicety in the mode of applying the finger which serves as a pleximeter, will be found to be unnecessary, and may be dispensed with after a little practice; the shape of the hand and fingers of the observer will, however, have some influence on the position which will be found in practice most convenient.

The most difficult part of percussion is not, however, the application of the hand which serves as a pleximeter; this is very soon acquired. Much difficulty, however, is often met with as to the method of tapping or striking with the right hand upon the pleximeter finger. You may use for this purpose either one finger or several, but you will find that for

children, and for persons who are very thin, and whose chests are therefore tender, a single finger will be most convenient. Whether you use one or more fingers, the essential part of the process is to hold the hand as firm as possible, and to give the greatest possible elasticity to the wrist. The motion should therefore be performed in the wrist, and not in the shoulder or elbow; if you strike with the whole arm, however gently it may be, you are apt to give the patient pain, and you are sure to deaden the sound. The sound depends upon the elasticity of the wrist, and if the fingers be suffered to remain in contact with the pleximeter, or the thorax, a moment longer than is necessary for the percussion, the sound will be proportionately obscured.

The slowness of the motion is a frequent error with those who are slightly acquainted with physical exploration. They are apt to pause as soon as the finger touches the surface, and allow it to remain in contact with the part, this is altogether wrong. It is at first difficult to acquire the perfect freedom of motion which is essential to elastic, clear percussion; still, it is perfectly practicable, with a little perseverance and experience.

If you use a single finger for purposes of percussion, there is little difficulty in holding it in the proper position. Either the fore or the middle finger of the right hand may be selected as the percussor; you then bring it, as nearly as possible, into the form of a light mallet or hammer, and make the second and third phalanges serve as the head of the hammer; of course, they must be flexed at right angles with the first phalanx, and must be retained firmly in that position, otherwise the form of the hammer is lost. The extremity of the finger should be as nearly at right angles with the hand as possible, otherwise the tap is not made with the extremity of the fingers, but the pulp, which is a matter of essential consequence, as the pulp of the fingers is soft, and non-elastic, and deadens the sound. If the thorax be covered with fat, or the parietes be infiltrated, it is necessary to percuss more strongly than is possible with a single finger; in that case bring the three middle fingers of the hand together, and allow them to rebound together after striking upon the pleximeter; they thus give a more forcible impulsion, and a sound nearly as clear as if a single finger

were used. Indeed, you will generally find this method the most convenient for the examination of the chest, although, as I have already stated, a single finger is the best percussor in cases of children whose chest is thin and very elastic, or in those whose thorax is very nearly in the condition of that of children, from emaciation. Although when you use several fingers, your tap is of course stronger than if a single one be employed, you will find in either case that it is not the force, but the sharpness and quickness of the impulsion, which produces the sound. A hard blow causes so much clacking sound against the finger that it proves a source of error; and renders the full resonance of the chest more difficult to draw out.

Plain and easy as these directions are, probably not one of you will at first practise them correctly; you will find that the elasticity of wrist, and light, clear tap, are learned but slowly, and after many efforts. There is, however, an easy method of improving your knowledge of percussion: repeat the operation frequently upon yourselves, at night, when you have removed your outer clothing, and all is quiet around you, a slight difference in sound then becomes perceptible, and the causes which render it dull are evident, and you thus learn to avoid those errors which are embarrassing from their apparent trifling insignificance. Notwithstanding all your care, you will not make equal progress in this matter; to acquire a perfect facility, a light and rather thin hand, and a correct ear, are requisite; if you have not these advantages, you will experience more difficulty,—but with more practice and more attention, it may be overcome.

An instrument has been contrived by Dr. Bigelow, of Boston, for percussion. It is a piece of whalebone or elastic wood, covered at the end with a ball of velvet or buckskin; the ball is nearly an inch in diameter: it is a very good instrument if any accident should deprive you of the full use of your fingers: the objections to it are, of course, the trouble and complexity of its use; hence Dr. Bigelow himself advises it merely in hospital practice, where you have a large number of patients to examine, and your fingers sometimes suffer from constant tapping. If you use this instrument, tap with the ball upon the pleximeter, which should be made of gum elastic.

While I was at Paris, an ingenious friend of mine imagined an instrument for measuring the sound of percussion. It was to consist of a percussor somewhat similar to that of Dr. Bigelow, but inclosed in a large stethoscope. The percussor was to be set in motion by a spring and wheel, as in watches, and the ear to be applied to the stethoscope in the usual way during the action of the instrument. The idea was ingenious, but the practical application of it almost impossible. Any contrivance to assist the senses in diagnosis must be extremely simple, or it will be practically useless; and, as a general rule, you will do much better to trust to your hands alone for the percussion of the chest.

Percussion is applicable to the study of abdominal as well as thoracic diseases; indeed, it is largely applicable to the exploration of many diseases of the former cavity. The abdomen contains solid viscera, such as the spleen and liver, and tubes filled with gas or liquid. The gaseous contents are much more abundant than the liquid; hence the sound is clear over the greater part of the abdomen from the gas retained in the alimentary canal. If the quantity of gas be increased, you necessarily have an increased resonance on percussion, and the converse is, of course, true; this fact enables you to estimate the effusion of liquid in the peritoneum, the enlargement of the solid viscera, and the distension of the cavity of the intestine with a large quantity of gas, which causes a tympanitic resonance. The same manual method of percussion is applicable here as in the exploration of the thorax; but, in general, you will find that a very light tap, with a single finger, is the best, especially in those cases in which the gas is contained in the larger intestines, and therefore approaches very near to the surface.

Percussion of the abdomen is always practised when the patient is lying upon his back, and the surface of the abdomen therefore placed in the situation most convenient for examination; but in the thorax you vary the position,—that is, you vary it in all those cases in which the patient is well enough to change his posture at pleasure: if he be too feeble for this, you must, of course, examine him in any way that happens to be practicable. In ordinary percussion your object is to place the pa-

tient in such a position that you may render the parietes of the chest as tense, and consequently as elastic as possible; the muscles must therefore be put upon the stretch, and the skin drawn tightly backwards. In percussing the anterior part of the chest, the patient should sit upon a chair; or, which is still better, stand erect, and throw the shoulders slightly backwards, so as to render the pectoral muscles tense; for the posterior part of the chest the position should be reversed; the patient must lean forward, and cross his arms strongly, to draw the scapulae from the spine, and throw out the arch of the back. To examine the axillary region, the arms should be raised above the head. The chest may be percussed at first in a cursory way on each side, to gain a general idea of the condition of the viscera, and afterwards you may proceed to the details, and compare the sonorousness of different parts of the lungs and of the heart. The lungs are not equally sonorous throughout their whole extent; for as the clearness of the sound depends upon the large quantity of air contained in the vesicles, and the small quantity of solid matter, a difference in the relative proportions of these parts will give rise to various degrees of resonance; thus, the sound is most clear wherever the vesicles are most numerous, and the larger bronchial tubes, whose walls are thick and firm, are least developed; for the thin parietes of the vesicles present no obstruction to the vibration of the air contained within them, but the hard walls of the bronchial tubes offer a very decided obstacle. Hence, if other things be equal, the sound may be stated to be most clear at the lower part of the chest, and along the anterior margin of the lungs, while it is comparatively dull at the summit and root; in the rest of the lungs the sound is intermediate, neither dull nor clear. Where the lungs are so situated as to overlap the more solid organs of viscera contained in the chest, the sound is but moderately clear, becoming more dull as the thickness of the solid organ is greater than that of the lungs. This is the case both with the liver and heart, and is a fact which is analogous to the phenomena observed in a diseased state of the lungs, where a lesion which renders the deeply seated parts of the pulmonary tissue more solid, makes the percussion dull over the corresponding parts of the lung. The dulness of

sound is observed, notwithstanding the superficial portions may be perfectly pervious to the air.

The relative quantity of bronchial and vesicular tissue gives rise to the modifications in the clearness of the sound in percussion to which I have alluded, and the resonance of the vesicular structure is quite different from that which would be caused by the same quantity of air contained in a single bag, or large vesicle. If the air contained in a large number of scattered vesicles were collected together, and percussion were made upon the sac which contains it, the sound would be drum-like, or tympanitic. This character is actually observed in certain morbid conditions of the chest, but is never similar to the healthy sound, which is more deep and hollow, but at the same time less gaseous. The difference between the two varieties of the clear sound will be appreciated at once if you examine the chest, and then percuss downwards until you come to the hollow viscera of the abdomen, which yield the tympanitic resonance very different from the hollow sound, which you may call vesicular.

After you have gained a general idea of the resonance of the chest, you should proceed to a more thorough examination of the various portions of it, one by one. For this purpose, it is convenient to divide the chest into regions or parts. These may be the anatomical divisions corresponding to the exterior of the chest, as the clavicular, scapular regions, &c.; or you may use terms expressive merely of the fractional parts into which the surface is divided, such as thirds, fourths, &c. For most purposes, the latter method has seemed to me to be the most convenient. When you wish to be more exact, you may subdivide these regions, or you may, in addition, designate them by a reference to their anatomical relations; but if you divide the anterior and posterior surfaces into three parts, and the axillary into two, you will find it sufficiently minute for most purposes. The anterior surface may be divided, therefore, first, into an upper third, extending from the summit of the lung to the lower margin of the second rib, and of course including the anatomical subdivisions of post-clavicular, or the space above the clavicle; clavicular, or that corresponding directly to this bone; and sub-clavicular, or the region

found immediately beneath it. This portion, in general terms, may be said to correspond with the summit of the lung, and is of great interest to the physician; for it is the ordinary seat of tuberculous diseases, which of course render the sound dull; and occasionally of pneumonia, which produces the same effect in a more marked degree; and, thirdly, of emphysema, which renders the sound preternaturally clear. The middle third extends from the lower margin of the upper division to the space between the fourth and fifth ribs; it is less interesting for practical study, for its diseases are, for the most part, such as begin in the upper or in the lower third, and extend themselves to the middle, than those which commence in it. Emphysema, however, is often more developed about the middle of the lung than in any other part of this surface. The lower third extends from the boundary of the second to the lower margin of the chest; it is the usual seat of pleuritic effusions and of hydrothorax; in both of these diseases the liquid extends itself gradually from the posterior parts of the chest, towards its anterior margin, rendering the lower portion dull.

In the healthy condition the sounds of percussion are not equally sonorous in all parts of the anterior part of the chest; in children the lower third is decidedly the most sonorous; in adults the middle is generally the clearest. In women you will find it difficult to compare these various portions together, for the mammae interfere so much with percussion that it is extremely difficult to examine the middle third in a satisfactory way. The heart is another cause of dulness of sound at the interior part of the lower third on the left side. The praecordial dulness extends from the space between the fourth and fifth ribs at the sternum to the nipple, generally passing a little within this part. On the right the dulness is bounded by a line which follows the middle of the sternum; the lower part of the heart rests upon the diaphragm.

The axillary or middle surfaces are divided most conveniently into two portions, by a line drawn nearly through the middle of the axillæ. The sound in these parts differs in a very slight degree, and is throughout extremely clear, from the almost complete absence of the more solid parts of the lungs, and the remarkable freedom of this portion of the chest from

muscles which necessarily deaden the sound to a greater or less degree.

If the posterior part of the chest be divided into thirds, these portions are still more unequal than they are at the anterior part. The upper extends from the top of the lungs to a line passing along the spine of the scapula, prolonged to the vertebræ. This, like the summit of the lungs at its anterior part, is the common seat of tubercles, which are more frequently developed here than at any other portion. Percussion is, however, so difficult at this part of the lungs from the thickness of the muscles, that its results are not of great value to beginners. Under all circumstances the sound is but moderately clear, becoming duller towards the external margin. The middle third extends from the lower margin of the upper, to a line drawn at right angles to the spine from the lower angle of the scapula. The natural sound is here much more clear than in the upper third, especially near the spine, where the scapula does not interfere with it. Upon the scapula the percussion is necessarily dull. The lower third corresponds to the largest mass of pulmonary tissue; and, from the conformation of the ribs, gives a remarkably clear sound in children, whose thorax is elastic. In adults, the greater firmness of the ribs and muscles, and the greater induration of the ligamentous and cartilaginous tissue, renders this sound less hollow; still it is always comparatively clear. This portion of the chest, with the middle third, is the usual seat of pneumonia; it is also the commencing point of pleuritic effusions,—hence, in disease it is often dull, when the rest of the chest is comparatively clear.

After you have examined the chest in a cursory manner, the regions must be examined comparatively,—that is, each part should be compared with the corresponding one upon the opposite side at the same points. For purposes of convenience I generally begin at the summit of the lung, at the anterior part, and then pass downwards towards the diaphragm, percussing both over the ribs and in the intercostal spaces, and always placing the finger of the left hand parallel to the ribs; this gives you the sound corresponding accurately with the portion of lung which is immediately beneath your finger, or very little more than the sound corresponding with that space. If you

percuss across several ribs, the sound is more difficult to appreciate, as it is produced by a much larger portion of the lung, and is therefore of little value, except for the facility which it gives you of gaining a general idea of the condition of the lungs. If you are at all doubtful about the sound, I would advise you always to compare the two sides together in very quick succession, while the impression of the sound is still fresh in your senses, and repeat the percussion until you are satisfied whether there is, or is not a real difference.

In a certain proportion of diseases of the lungs, the signs of percussion, united with the general symptoms, are sufficient for the diagnosis; or, if combined with the other physical signs, they are sometimes perfectly characteristic of the disease without the aid of the rational symptoms. You must remember, however, that percussion indicates merely the relative density of the lung, and is not sufficient for the diagnosis of most of its diseases without the aid of other means of investigation. The signs of percussion, although comparatively few in number, are often of more value than any others, for their evidence is positive as far as it is applicable, and indicates with perfect accuracy the density of the tissue beneath the spot upon which the percussion is made; but as the causes which influence the density are numerous, they are not explicable without the comparison of other symptoms. Percussion is, therefore, of all the signs of pulmonary disease, the most strictly physical, and of course the most mathematically correct. Percussion is not confined to the diseases of the lungs; for as these organs surround the heart, the sound is clear as far as their tissue extends: hence, the size of the heart is measured by percussion of the lungs, rather than of the organ itself. It is, as we shall afterwards see, one of the most certain methods of learning the size of the heart.

The practical mode of acquiring percussion is of more interest to you than the mere detail of the signs derived from it. Like all the means of pectoral investigation, percussion may be learned in two ways,—that is, either on the healthy or the diseased subject. Those of you who observe patients on a large scale, and have sufficient time to examine at your own leisure the cases which I point out to you, will learn percussion chiefly from pa-

tients, and, as it were, in connection with other signs. But this is not always the more convenient method: it is not at all fitted for those whose sense of hearing is not acute, or who may not possess the necessary facilities for studying disease among a large collection of patients. If your ear is to be educated as well as your hand, you will cause no little uneasiness to your patients in your attempts to gain, little by little, a familiarity with the sounds. You will be sure to percuss much too smartly for their comfort at least, and you may possibly aggravate the symptoms of their diseases. Always, therefore, learn on your own persons; or if several of you unite together, and form little clubs for mutual percussion, you will get on much more rapidly. For the healthy chest presents every shade of percussion, from complete flatness to the most perfect sonorousness, and you may thus accustom yourselves to every variety of sound. At first you should examine the parts of the chest where the sounds are most distinct; and for this purpose it is best to select a young person, and, if possible, one who is rather thin,—then, by percussing first on the middle of the side of the chest near the sternum, and afterwards on the region of the liver, you may gain a correct idea of the difference between perfect flatness, and the full, clear, pulmonary sound. This should be repeated frequently, until a good idea of the difference of these sounds is impressed upon the memory, and, above all, upon the senses. The same points of extreme flatness and sonorousness will explain the difference between the tapping with a single finger, and the deeper, but less sharp sound produced by decided percussion with several fingers. These comparative points should be examined on several individuals of different ages, and different degrees of flatness or thinness, until a correct idea of the average sounds is acquired. After the extreme degrees of sound have been repeatedly heard, the intermediate characters may be learned by percussion of the praecordial region, where the sound is dull, but in the healthy subject not completely flat. There is also a little dulness of sound at the summit of the lungs; on the right side, in most individuals, it is a little less clear than upon the left. The repeated examination of these parts of the chest will not only give you a correct idea of the sounds them-

selves, but will train your ear and hand to the manual performance of percussion.

I have pointed out to you the great accuracy of the signs of percussion, and their uniform dependence upon the same physical condition of the lungs. It matters but little whether the disease is seated on the surface of the lung or in the internal parts of it; the quantity of air is necessarily diminished by every hardening of the tissue, which is sufficiently extensive to compress one or more lobules. Whenever the obstruction is sufficient to form an alteration in the sound perceptible to our senses, it may be readily recognised. The induration is extensive enough when three or four lobules become impervious to the air, but it cannot be recognised with certainty if limited to a less extent. The deeper seated lesions are rather more obscure than those nearer the surface, as the air-vesicles which intervene between the ear and the indurated portion, of course give rise to a clear sound, but it is less full and hollow than it is when the lung is completely free; for the plain reason that the mass of sonorous, that is, of aerated tissue, beneath your finger, is less considerable.

A compression of the lung necessarily acts much in the same way as an induration of its parenchyma; hence effusions into the pleurae, or even into the pericardium, compress the pulmonary tissue, and render it less elastic,—that is, they diminish the size, and expel the contents of the air-cells. The compression which is at first produced does not give rise to as great a degree of dulness as the induration of the pulmonary tissue, for the whole tissue remains, and is merely a little less distended with air than usual; but in advanced cases of effusions into the pleura the flatness may be more complete than under any other circumstances, for the compression, although slow, may be carried to such a point as to alter the structure of the pulmonary tissue completely, and flatten it against the spine. In the pericardial effusions the compression is never so great as to destroy the resonance, except immediately around the liquid.

The condition of life has nothing to do with the clearness or dulness on percussion,—for in the lung removed from the dead body you will find precisely the same condition of things under the same circumstances,—and you may

readily verify the fact for yourselves, if you attempt to make the examination of the body of an individual dead of a disease which alters the structure of the lung,—or you may resort to the same observation, by producing a change in the structure of the lung by artificial means, such as injections of wax into the bronchial tubes, or of liquids or of air into the serous cavities; if, on the other hand, you distend the vesicles by inflating them with air, the percussion immediately becomes extremely resonant.

You will find that in healthy individuals there is often a considerable difference in the sounds of percussion. I have already alluded to some of the causes of this difference, which may be perfectly external to the chest, and consist in accumulations of fat or serum beneath the skin; or, on the other hand, they may depend upon a want of resonance in the thoracic parietes, and arise from the partial ossification of the cartilages. There is a third class of patients who offer less than the average degree of resonance of the chest; in these individuals the lungs contain less air than usual, and are apparently more firm and more similar to cellular tissue. The chest, on the other hand, may be more resonant than usual, from either a real dilatation of the vesicles of the lungs, or from the patient being greatly emaciated, without much disease of the lungs themselves. You will find but one way of overcoming these difficulties,—and that is, to examine the chest in many patients until you acquire a knowledge of the average clearness or dulness of sound, and of the circumstances which modify it without the existence of positive disease of the lungs. These accidental circumstances are altogether dependent upon the ordinary acoustic principles, elasticity and thinness of the parietes of the chest favouring the clearness of sound, and thickness and rigidity of them producing a contrary effect.

#### ON CREOSOTE AS A REMEDY FOR DEAFNESS.

BY O. H. PARTRIDGE, M. D.

From numerous observations that I have made in hospital and private practice, I believe that four cases out of five of deafness are caused either from local debility, producing what is generally called "nervous deafness," or from a want of action in the ceruminous glands, or in consequence of the external passage becoming obstructed from wax, mucus, or some foreign substance getting into the ear.

I lay no claims to originality, in the course of treatment I have been in the practice of pursuing, but will merely state facts as they have come under my notice, with the wish, if others have not prescribed the same course of treatment, that they will give it a fair trial. A large number of cases of morbid hearing, and some of long standing, have come under my observation within the last three or four years, and when they were produced by the above mentioned causes, I have generally been successful in curing, or greatly relieving, the patients. My directions are as follows: to have the meatus auditorius thoroughly cleansed, I cause to be dropped into the ear night and morning for five or six days, a few drops of olive oil or the oil of almonds, and injecting with a very small syringe, once a day, a solution of the best castile soap in warm water, with a little eau de cologne, in the proportions of six parts of the solution, to one of the cologne. When on examination I find the ear perfectly clean, I then commence with the creosote, which, I think, will act more speedily and efficaciously by stimulating and producing a healthy action in the parts diseased, than any application I have ever yet seen used. I commence with the following formula:

R.—Creosote,                    3ss.  
Ol. Amygdalæ,                    3iv.

M.

I am particular to obtain a camel's-hair brush, of good size, with long hair, so that the mixture may be well applied, being particular to introduce it far into the ear. After a few days, I usually increase the quantity of creosote as occasion may require, often using it as strong as one part of creosote to three of the oil of almonds. In pursuing this course, I have never found it produce any unpleasant symptoms, but an agreeable sensation of warmth. The duration of treatment, of course, varies according to circumstances, from three weeks to three months. While using the creosote, I syringe into the ears, every other day, the solution of soap and cologne; and, in the majority of cases, use derivations behind the ears; also, occasionally, some general directions are necessary.

Looking over my note book, I find a number of interesting cases, but I will mention only two or three. About a year ago, Mrs. E., of New York, aged about 45 years, on a visit to this city, informed me that about six years previous, she found her hearing gradually failing—knew of no assignable cause. When I saw her, it was with great difficulty I could make her hear, although I spoke very loud, and she used a trumpet. Yet she told me, that when riding over the pavements in a carriage, she could hear as well as any one. This being a case of "paracusis perversæ," and of rare occurrence, I immediately became interested. I accordingly invited the lady to ride with me, and soon found that when we were travelling

very quick, and the carriage making much noise, her hearing was very acute; indeed she could hear better than I could. As the lady had submitted to various modes of treatment, without any good resulting, I thought it to be a fair chance to try the creosote, and I was pleased, in a short time, to find it had given tone to the debilitated organs, and improved the hearing rapidly, so that in four months she could hear as well as before the attack.

Last April I was called to see Mrs. H. of New Hampshire, who had come to this city for medical advice. I learned from her that about ten years previous she had been attacked with a disease of the spine, and as she convalesced, her hearing gradually failed, so that at the time I saw her, she used an ear trumpet, and then could only hear when I spoke in a very loud tone. I examined the case, and found the deafness was in consequence of a want of action in the ceruminous glands. I immediately commenced the treatment before mentioned, and in about three weeks, on calling to see her one morning, she met me, "with joy sparkling in her eyes," and informed me that she had that morning heard the ticking of her watch, the first time for six years: in six weeks she attended church and could perfectly understand the clergyman, without the ear trumpet, which was to her a source of infinite satisfaction, as she was a remarkably pious lady.

A gentleman, teacher in one of the public schools, has, under my directions, been using the creosote for a few weeks, and has quite recovered his hearing: he was about relinquishing his school, when he applied to me, in consequence of his deafness, which had been getting worse for the last three or four years.

I might mention many more cases but these I think sufficient. It is of course not expected that the creosote will be of any benefit in those cases where there is mal-formation, or total obliteration of the Eustachian tube; but these cases are of rare occurrence, compared with those I have mentioned.

Philadelphia, May 20, 1840.

#### FOREIGN CORRESPONDENCE.

##### LETTER FROM PROFESSOR MARTINS.

No. VIII.

*On Perforations of the Lungs.* By CHARLES MARTINS, D. M. P.

Paris, April 4, 1840.

To the Editors of the Medical Examiner.

In my last letter I gave you an account of a case of pneumo-hydrothorax with perforation of the bronchiæ, read before the Society of Medical Observation. In the debate to which the paper gave rise, all the speakers, with the ex-

ception of the author, attributed the perforation of the lung to the softening of a tubercle. This opinion I cannot adopt, but agree with the view presented by M. Legendre. What, in fact, was the amount of argument urged in opposition to him? That no instance was known of perforation of the lung, the result of empyema. This was the sum of what was advanced on the opposing side of the question. The discussion on this subject brought to my recollection a thesis entitled, "An Essay on Perforations of the Lungs, submitted by M. Vigier Devarennes to the Faculty of Medicine, in 1834, numbered 43." The author brings successively under notice the various diseases which may occasion perforation. They are: 1st, tubercles, passed into the state of suppuration; 2dly, severe haemorrhages, causing a laceration of the pulmonary tissue. There are three such cases well authenticated and analysed by M. Cruveilhier, in the article *Apoplexia*, in the Dictionary of Practical Medicine and Surgery. 3dly, pulmonary empyema. Littré, Meckel, Cruveilhier, Devillier, and W. Hewson report instances in which the rupture of one or more vesicles established a communication between the pleura and bronchiæ. 4thly, acephalocystous cysts, (*Clinique des Hopitaux*, No. 5;) 5thly, chronic pleurisy. Here, the author cites all the cases to be found on record, in which purulent collections in the pleuræ thus opened a passage across the lung. M. Cayol (*Bibliothèque Médicale*, tom. 40,) has shown that there exists a variety of encysted empyema, often confounded with vomicæ, and which most frequently terminates by perforation. In these cases, says he, the passage is simple, rounded, straight, lined with a membrane, and without sinuosities. In the case of M. Legendre the fistula presented all the characters just described by M. Cayol. M. Legendre, in the debate, dwelt upon the fact that there were no sinuses (*poches*) in the neighbourhood or on the route of the fistula; whence he concluded that it could not be the product of the softening of a tubercle. M. Louis very justly observed, that similar fistulæ are sometimes destitute of sinuses; he might have added that in many cases, sinuses are found either laterally or upon the course of the passage, without the existence of tubercles. The following case will illustrate this fact; I noted

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it in 1833, in the service of M. Biett, and read it the same year before the Society of Medical Observation. I have thought that it might interest your readers, because it is the type of a sixth order of disease which occasions perforation of the lungs—abscesses formed in the abdominal cavity.

*Case of Abscess of the Peritoneum opening into the Bronchiæ—Gangrene of the Lung.*

The subject of this case, named Colin, aged, 28 years, a ship painter, was feeble in infancy, and walked very late. About the age of 14, he was confined to bed with a fever for fifteen days. From that time his health was tolerably good. He had never coughed nor spit blood, nor sweat in the night, nor suffered from pains between the shoulders. From the beginning of the present year, however, he experienced some slight attacks of indisposition, occasioned chiefly by colics. From the beginning of the month of May, these colics had become more frequent, and were accompanied by constipation. The patient at this time was working very unusually hard, continuing at work sometimes during the nights, and not resting even on Sundays. The 4th of May the attacks of colic became unusually severe; he swallowed a glass of brandy, and then returned home; towards four o'clock in the afternoon he ate some vegetable soup. The following day, the attacks of colic continued. They were not accompanied with looseness of the bowels, but with a sensation of heat and pain, increased by pressure. The belly was not tumefied; the patient went to stool only by the aid of injections and passed his fæces in very small pieces.

On the eighth, he sent for Dr. Jolly, who recognised a well-marked case of lead colic. He ordered fifteen leeches to be applied to the abdomen, with hip baths, with ptisan of marshmallows, and injections. This treatment was followed by relief, but, on the sixteenth, Colin was suddenly taken with a severe pain in the right flank at the level of the umbilicus, increased by pressure and respiration. The pain shot through the entire right side as far up as the shoulder-blade; a jaundiced tint spread over the whole body. The pain went on constantly increasing, as well as the oppression; sixteen leeches were applied to the side. The patient was relieved, but the pain advanced

towards the epigastrium. On the 23d, the cough increased, in the midst of a violent fit of which, occurred the sudden expectoration of a large quantity of white pus, accompanied by so great a fetidity that it was necessary to sprinkle the chamber with chloride of lime. Dr. Jolly diagnosticated an abscess of the liver which had opened into the lung. He had a large blister applied to the side.

The patient was brought to the hospital on the 29th of May. He was then in the following condition:—Face pale and thin; eyes projecting; a slightly jaundiced tint in the conjunctiva; tongue moist, slightly brown in the middle; breath fetid. Clavicles prominent; ribs projecting under the skin. The right inferior portion of the thorax strikingly swollen in front. **ANTERIORLY**, percussion sonorous in the entire *left* side, above and below the clavicle; stomachal sound from the sixth rib downwards towards the epigastrium. Respiration puerile, with well-marked vesicular expansion. Sounds and impulse of the heart normal. In the entire lateral region of the chest, perfect sonorousness, with slight mucous rhonchus: on the *right*, extreme sonorousness; respiratory murmur very feeble to the extent of three inches, ascending from the nipple. Elsewhere, ordinary sonorousness, respiration feeble, marked with mucous rhonchus. In the lateral portion, flatness, increasing from the armpit to the region of the liver, where it is complete; at the level of the nipple mucous rhonchus is heard, and a grating sound like that produced by the friction of leather. An externe of the ward asserts that he heard the metallic tinkling, and compares the sound to that which would be produced by the collision of two five-franc pieces. No resonance of the voice. **POSTERIORLY**, flatness of the two sides, but especially of the right, at the internal portion of the shoulder blade. Here, in a space of three inches in height, the sound is entirely flat. Well-marked tubal respiration is heard, accompanied with bronchophony. Throughout the rest of the lung on this side, very strong mucous rhonchus. On the *left*, mucous rhonchus masking the respiratory sound throughout the entire lung. The respiration is difficult, and accelerated by the least movement. When the patient coughs, he expectorates at the same time a quantity of liquid equivalent to about a

spoonful of soup. This expectorated liquid is homogeneous, of a brownish-red colour. It resembles a mixture of pus and blood; the odour which it exhales is extremely fetid, and resembles that proceeding from animal matter in a state of putrefaction. Sometimes it is insipid and nauseous like that of wet plaster. Abdomen slightly tender, tympanitic, giving a clear sound on percussion. It is not painful at any point, even on pressure.

**28th, morning.**—Oppression less severe; respiration less accelerated. Pulse ninety-five; face flushed; stools natural. The day before he had expectorated gray sputa, frothy, with the odour of wet plaster still sensible, but less characterized than at the period of the patient's entrance; forty-nine inspirations per minute; tongue moist, rosy in the middle, a little foul at the edges. The grating leather-sound continues posteriorly and below the right nipple. **Posteriorly on the right**, flatness throughout the whole extent of the lung; sub-crepitant and mucous rhonchus, accompanied with bronchial respiration. On the *left*, mucous rhonchus, with some sibilant; a little bronchophony above. Death at four o'clock in the evening.

**Autopsy, the 30th of May.**—Body emaciated, pale, spotted with blue, posteriorly; articulations stiff; abdomen slightly tympanitic; muscles red and tolerable fleshy. Upon opening the abdomen, we perceived a vast cavity which extended between the ribs and liver; the latter was considerably pushed in, and separated from the abdominal parietes by a pint of grayish and grumous pus. The cavity of the abscess extended from the fourth to the ninth rib, in about a length of half a foot; its form was that of a triangle, or of a cone, with the base above. From the liver to the ribs, there was a distance of about four inches, which diminished towards the lower part, where the liver was in contact with the muscles of the abdomen. These parietes of the abscess were thus formed: superiorly by the diaphragm, externally by the ribs and the soft part covering them; inferiorly by the intestinal circumvolutions, and within by the convex surface of the great lobe of the liver. This cavity was throughout lined with a false membrane of the thickness of a fifth to an eighth of a line, yellow and tolerably adherent to the subjacent parts. The peritoneum was every where in-

tact, except in a single point. At the most convex portion of the diaphragm, for a space of three inches in length by two in breadth, this membrane presented an unequal appearance of mixed white and brown, covered with very long filaments. The edge of this space is red, projecting, unequal, and presents the appearance of a vast intestinal ulceration. This surface is formed at the expense of the diaphragm, the peritoneum, and the base of the lung; the latter is bare for the extent of an inch and a half in length by the same in breadth. This was ascertained in the following manner: A syringe full of water was fitted to the trachea; the piston was hardly touched before the liquid appeared on this surface, chiefly by two principal points. Thus, the pulmonary tissue, and even the extremity of the bronchial tree, were shown to communicate with the purulent centre. Around this point, the diaphragm had lost its muscular appearance, and was indurated.

The trachea was internally of a greenish white, but from its bifurcation to the extreme bronchial ramifications, were found well marked red spots.

*Right Lung.*—Superior lobe red, crepitating, giving out, upon being cut, a frothy and bloody liquid. At the posterior superior portion of the inferior lobe, is observed a large yellowish spot, dotted with red, three inches in height by two in breadth. It is perceived externally that this spot corresponds to a cavity, and forms a very thin wall. Upon incising it, a sinus is cut into, very winding, divided into several secondary cavities, which, united, are about equivalent in volume to a goose's egg. It contains about three ounces of a grayish, homogeneous liquid, of a very foetid, gangrenous odour. Numerous bands traverse this cavity and constitute anfractuosity; these bands are formed by the bronchiæ and vessels, the external surface of which is protected by a false membrane, the fifth of a line in thickness; at the interior of the vessels are found coagula of blood. The gangrenous cavity is separated from the diaphragmatic ulceration, by a space of about three inches, so that there is between them no direct communication. The bronchiæ which open into the sub-diaphragmatic purulent collections do not cross the cavity, but, after a circuit of half an inch, join the large

bronchial tubes which communicate with it. Thus, liquids proceeding from the gangrenous cavity and the purulent collection, can easily mix. The remainder of the inferior lobe is of a brownish-red colour, and sinks in water. The anterior portion of the right lung is red, crepitating, and hard. In the region corresponding to the mammae, the vesicles are very much developed.

*Left Lung.*—Superior portion bluish externally, of a rosy red internally, crepitating, giving out a liquid slightly tinged with blood. At the summit is a little cavity, about the size of a walnut, and entirely similar to the gangrenous cavity, observed in the right lung. The inferior posterior portion is of a red colour, does not crepitate, and scarcely floats on the surface of water. This whole portion is adherent to the costal portion, and covered with a slight false membrane. The internal surface of the pulmonary veins contains neither blood nor pus.

*Liver.*—The whole superior and external portion of the great lobe, to within an inch of the free edge, instead of being convex, has its surface flat, forced backwards towards the vertebral column, and pitted with superficial depressions. It is lined by a yellowish false membrane of the kind already described. Upon cutting into the liver, its tissue, for a thickness of four lines, is found of a brownish slate colour, while the remainder is of a nearly uniform pale red, and of a normal consistence. This brown colour is not detected in the lesser lobe, which is not covered by a false membrane. At the inferior and external point of the great lobe, and upon the inferior surface, is a small oval false membrane, an inch in diameter; it is a quarter of a line thick and entirely isolated; below it, the liver presents a grayish slate coloured tint. This false membrane served as a wall to an abscess of the size of an egg, elsewhere circumscribed by the convolutions of the intestines covered with a false membrane. Two purulent collections extended through the abdomen, one between the cæcum and the abdominal parietes, down to the anterior superior process of the os ileum; the other between the colon and the mass of small intestines to the groin. The gall-bladder contains a yellowish bile, with a bistre-coloured matter, becoming soft between the fingers. No

traces of abscess in the parenchyma of the liver. Spleen healthy. Slight adhesion between the intestinal circumvolutions through the medium of little false membranes. Stomach and intestines healthy. The coagula taken from the large vessels were firm, black, and without appearance of pus. Brain healthy. It is evident that the perforations preceded the formation of the gangrenous abscesses. This is inferred from the whole history of the disease, and, particularly, from the symptoms observed the 29th of May.

In the same essay is found a case altogether analogous, observed by M. Piet, and reported at length by M. Vigier, after mine.

To close the circle of diseases which may give rise to perforation, and which are the more usual cause of it, I add the history of a case observed by me in 1828, in the service of M. Husson, at the Hôtel Dieu.

*Phthisis—Perforation of the Lung—Metallic Tinkling.*

The subject of this case, named Bechadergué, is an old soldier, forty-eight years of age, tall, thin, and so broken down by hard usage, that he appears sixty years of age. Five years since, he had an attack of acute pneumonia, and has coughed ever since.

*Present condition, (20th January, 1839.)—* Face emaciated; features altered; cheeks red; pulse small, frequent, and feeble. Cough difficult, feeble, accompanied by severe pain in the right side, and followed by the expectoration of greenish, viscid sputa, which adhere to the cup, and are surrounded by a small quantity of clear frothy mucus. Throughout the left anterior portion of the chest, percussion gives a clear sound, and the respiration is puerile. Comparing the two sides, the right, at the superior portion, gives a sound, which, without being flat, is much less sonorous than that of the left side. But at the level of the left nipple and below it, we meet with a hollow resonance indicating a large cavity. Upon applying the ear below the right shoulder-blade, a silvery sound is heard, similar to that which would be produced by drops of water falling one by one into an empty glass goblet. All who listened made use of the same comparison. The drops of water do not seem to fall constantly, but only at intervals, sometimes two follow each other rapidly.

*24th of January.*—The patient is very much oppressed; the beatings of the heart are very violent, and heard throughout the whole chest. The metallic tinkling continues, and is accompanied by well-marked bronchophony.

*26th.*—The metallic tinkling is heard only when the patient coughs; it resembles the sound given out by a goblet when struck. Death the 27th.

*Autopsy.*—The chest having been opened on the right side, a very observable quantity of air escaped. A vast cavity, extending from the fourth to the last *true* rib, was half filled with a frothy and purulent liquid. In order to find the fistula, a bellows was fitted to the trachea. Every time it was blown, the lung was slightly raised, but no bubbles of air were seen to rise above the liquid in which it was immersed. A light having been introduced into the thorax, the flame remained motionless. Then the lung was detached, and at the anterior and inferior portion of the superior lobe, an opening was found, rounded, oval, with hardened edges, communicating with the bronchial ramifications by a series of little cavities. The summit of the lung, as well as the greater portion of its parenchyma, was filled with little cavities, and studded with crude tubercles. Here and there were remarked points of red hepatization. There were likewise tubercles at the summit of the left lung. The other viscera were healthy.

DOMESTIC SUMMARY.

We learn that Dr. EDM. DU BARRY, U. S. N. is preparing for the press a translation of "Bouillaud on Diseases of the Heart."

*Case of Sudden Death from Rupture of the Spermatic Vein.* By JAMES MCNAUGHTON, M. D., of Albany.—For the early part of this case I am indebted to James P. Boyd, M. D. Dr. Boyd says:—"I saw Mrs. V—f, aged thirty-eight, January 28th, at 11 o'clock, A. M. She walked from her bed-room into an adjoining parlour when I called; told me that she had always enjoyed good health; was naturally of a florid complexion, and healthy. The preceding night she did not rest well; was troubled with dreams, and her bowels felt *bloated*, as she expressed it. She, however, rose, and took a hearty breakfast. Not long after, the uneasy sensations increasing, amounting even to pain, she took, at the suggestion of her husband, a dose of salts. This, however, soon produced nausea and vomiting, and the salts

were rejected. The pain was so severe that I was sent for. I found her very pale, with a cold surface; lips and tongue appearing bloodless; complained of pain in the lower part of the bowels, with a constant bearing down, and some pain on pressure. She also complained of pain generally throughout the abdomen and thorax; difficulty of breathing and faintness; pulse at the wrist very small and weak; gave her a pill of four grains of calomel, and one of opium, to be repeated every hour until the pain was relieved, and to be followed by a dose of castor oil; left directions that I should be sent for if the pain increased. In a short time I was sent for in great haste; I returned about 12 o'clock, M., and found all the symptoms aggravated; the pain very severe, and principally confined to the lower part of the bowels; great faintness, requiring constant fanning; she became easy while I remained. Saw her again at 2 P. M.; and finding no reaction or abatement of symptoms, I proposed a consultation. Dr. B. P. Staats was called in, to whom I gave an account of the symptoms, and stated the embarrassment I experienced in relation to the true nature of the case. Some of the symptoms would lead one to suppose poison to be the cause, whilst the sudden and extreme prostration of strength, coldness of surface, and almost total extinction of pulse, would indicate the rupture of a blood-vessel; but then the pain could not be so well accounted for on that supposition. I supposed it hernia, but she declared repeatedly that she had no rupture or swelling about the abdomen. In confirmation of the probable correctness of this opinion, she did not refer the pain to any of the usual situations of hernia.

We met again at 4 P. M., when finding our patient no better, we proposed a thorough examination of the abdomen externally, and of the uterus per vaginam, which was accordingly done. During this examination Dr. Staats discovered an elastic, round tumour, near the umbilicus, one and a half or two inches in diameter. This we had no doubt was the cause of some part of her difficulty, although the patient declared that it was no such thing; that she had had that lump for fifteen or sixteen years—ever since her last confinement. At this stage of the case we concluded to call you into consultation, and the further history of the patient is known to yourself."

I saw the patient in the evening, about 8 o'clock, with Drs. Staats and Boyd; found her pale, cold, and almost pulseless; complained of pain in the lower part of the pelvis, and of an urgent desire to void urine. Dr. Staats had previously introduced a catheter, but very little urine was found in the bladder. I examined the abdomen; found the bowels slightly tumid, but not tense. There was general uneasiness of the whole abdomen, and great tenderness about the navel. Close to the navel I found a tumour, smooth, and rounded, which I had no

difficulty in recognising as hernia. It was less in size than is stated by Dr. Boyd when first examined; it is therefore probable that it had been partially reduced before my visit. The patient complained excessively when I made even a gentle pressure on the tumour. Believing, however, that the tumour was the source of many, if not of most of the bad symptoms, and as the case was only of a few hours' standing, and no reaction had taken place, I thought it prudent and proper to return the protruded part into the abdomen. By gentle, steady pressure in the proper direction of the aperture, I succeeded in reducing the hernia in the course of a few minutes, the patient all the time complaining most bitterly of my hurting her. The reduction of the tumour was followed immediately by sickness at stomach and vomiting. Soon after which she became easier, and we left her with a pulse somewhat improved, after giving suitable directions about her treatment in our absence.

As there was cause to fear inflammation of the bowels in consequence of the long confinement of the protruded parts, an enema was directed in the evening, the stomach not admitting any cathartic by the mouth. In the course of the night of the 29th, Dr. Boyd was called to see her on account of the continuance of the pain at the lower part of the pelvis and throughout the abdomen generally. A prescription calculated to relieve urgent symptoms was made. We saw her again on the morning of the 28th, at 9 A. M. The skin was somewhat warmer about the hands, and the pulse more distinct; the face was pale, cold, and oedematous; bowels more full and more tender; at the umbilical foramen, upon careful examination, found a small, soft tumour, less than an inch in diameter, resembling an omental hernia, and scarcely distinguishable from the surrounding adipose matter, except by its circumscribed form. We still felt suspicious that this apparent protrusion had some agency in keeping up the urgent symptoms; but she expressed great dislike to my handling the swelling, charging me with all the bad feelings she had during the night.

In the course of an hour from this visit we met again, having been joined in the consultation by Dr. March. Upon a full examination of all the circumstances of the case, we came to the conclusion that the safest course would be to cut down upon the tumour, and ascertain its condition, rather than to irritate the part by an attempt at reduction by the taxis. The patient expressed a wish that Dr. March would operate. He proceeded immediately to the operation; the integuments over the tumour were thin—the tumour itself appeared round and smooth, covered by a sack, the vessels of which were dark and loaded with blood, but upon the division of this the enclosed adipose matter appeared of its natural healthy colour, and consisted of a cluster of masses of fat of

different sizes. The umbilical foramen was narrow, but readily admitted a directory through it within the neck of the sack. The linea alba was divided downwards for a short distance by the bistoury guided by the directory, and the whole protrusion readily returned within the abdomen. The parts were then brought together in the usual manner, and the patient left to repose.

The operation did not afford any material relief, and the state of the protrusion was not such as would satisfactorily account for the intensity of the prostration. The bearing down and the urgent desire to void urine continued. The uterus was very low in the pelvis, and morbidly sensible to the touch, but not larger than usual in the unimpregnated state in persons who have borne child. In the evening the symptoms were somewhat milder; an enema had been exhibited, and came off without bringing much feces with it. This was followed by a full dose of calomel, and the patient was left for the night to the charge of her nurse. On the morning of the 30th she seemed somewhat better,—skin warmer, and had a free discharge from her bowels. In the course of the day her distress returned, and she passed a restless, uncomfortable night. Saw her again on the morning of the 31st, when she was evidently sinking, and in the course of a few hours she died.

The case being singular in many respects, we expressed an earnest wish that a *post mortem* examination might be permitted, and the relatives, with great good sense, had the liberality to permit it.

*Appearances on dissection.*—The body was examined on the morning of the 1st of February, in presence of Drs. Staats, March, Boyd, Armsby, and myself. An incision was made from the ensiform cartilage to the pubis, through the linea alba, deviating to the left in the vicinity of the umbilicus, so as not to derange the relations of the parts in that vicinity. Well formed *pus* was found at the *umbilicus*, beneath the abdominal tendon, external to the peritoneum. Internally, the peritoneum appeared healthy, and free from inflammation. The tumour which appeared at the umbilicus, and which was reduced by the operation, proved to have no connection with the omentum, but to be merely a mass of adipose matter external to the peritoneum, filling up the umbilical foramen. Half an inch below there was a small opening in the linea alba, through which the herniary tumour, which had been reduced by the taxis, had protruded. The omentum, and the abdominal viscera in the immediate vicinity of the umbilicus, were healthy in appearance, and in their proper relative positions; but both the small and large intestines were enormously distended with *flatus*.

In this stage of the dissection, we were struck with the quantity of bloody serum which filled the interstices of the intestines,

and proceeded to ascertain the state of the parts in the lower abdominal region and pelvis. We found, to our surprise, the *whole pelvis filled with a coagulum of venous blood*, which, when carefully removed, almost filled a large chamber pot. Upon carefully examining the abdomen and pelvis, we found the source of this fatal haemorrhage. A tumour, about the size of a butternut, was found near the entrance of the fallopian tube into the uterus, and distant about two inches from that organ. It was first taken for the ovary; but a more careful examination found the ovary in its proper place, but shrivelled and hard. The same was the case with the ovary of the left side. This copious haemorrhage was now evidently from the right spermatic vein, and the tumour on the inner part of the fallopian tube was nothing more than a coagulum of blood, which, by a slight pressure, was readily removed. Those familiar with practical anatomy, know how enormously the spermatic veins are sometimes enlarged, even in the unimpregnated state of the uterus, and can therefore readily understand how suddenly the system would sink when they were ruptured. Having no valves, and communicating directly with the trunk of the *vena cava* on the right side, aided by the pressure of a high column of blood, the enormous loss found in this case, might have taken place in a very short space of time.

This appearance of things would satisfactorily account for the sudden sinking of the patient, and the want of reaction during the whole attack; but we could not thus account for the extreme tenderness of the abdomen, and particularly in the vicinity of the swelling, which appeared immediately below the umbilicus. The condition of the viscera in that vicinity did not indicate their having suffered any serious strangulation. Upon carefully wiping away the blood, however, from the *jejunum* and *ileum*, the upper part of the latter appeared dark for more than eighteen inches; and, upon drawing this portion between the fingers and thumb, it readily gave way, and had evidently lost its vitality. It was distinctly more friable than the same membrane either above or below this point. We concluded that this point had been protruded through the opening in the linea alba, and had been strangulated; that to this was attributable the tenderness about the navel, the vomiting, &c.; that the intestines were not thickened, nor the peritoneum inflamed more, might be accounted for by the exhausted state of the vascular system, not admitting of the occurrence of acute inflammatory reaction.

There is a case somewhat similar to this related in Professor Christison's work on Poisons.\* In that case, however, there was a fal-

\* Christison on Poisons, 3d ed. p. 107. For this reference I am indebted to my colleague, Prof. T. R. Beck.

lopian conception, and the haemorrhage took place from the appendages of the ovum. In our patient there was no pregnancy, either uterine, or extra-uterine, and the patient had enjoyed good health for years previously.—*Transactions of New York Medical Society.*

*Case of Ozæna, accompanied by frequent paroxysms of Neuralgia Faciei, cured by the Extraction of a Tooth.* By CHAPIN A. HARRIS, M. D., Dentist, Baltimore.—Mr. S—, a resident of a neighbouring county, of a full habit, and slightly disposed to scorbustus, had, for a little more than two years, been the subject of an obstinate and distressing affection of the left nasal fossa, and of frequent attacks of pain, which he represented as being, at times, almost excruciating—commencing immediately over the first left superior molaris, thence shooting back to the angle of the jaw, then to the ala of the nose, inner angle of the eye, and not unfrequently to the top of the head. Ulceration had taken place in the mucous membrane of the affected nostril, and a thin, foetid matter, occasionally streaked with pus and blood, was almost constantly discharged, excoriating the parts with which it came in contact. The cavity of the nostril had become so much closed by the thickening of its membranes, that the passage of air through it was prevented; the external integuments had assumed a dark florid appearance, and become considerably tumefied and sensitive to the touch.

His teeth having been suspected, though to all appearance perfectly sound, as having some agency in the production of the neuralgic affection, he was directed to a dentist to have them examined; but as none of them exhibited any signs of decay, it was thought to be dependent upon some other cause. Accordingly, the remedial means usually employed for this, as well as those for the other affection under which he was labouring, were prescribed; but from their use, although continued for several months, and under a variety of modifications, he derived no benefit.

His complaints becoming more and more aggravated, he at length became apprehensive as to their result, and determined, by the advice of his friends, to visit several of the medicinal springs in Virginia. At one of these he met with an eminent medical gentleman from one of the northern cities, whom he consulted; but neither from his prescription, nor the use of the waters of any of the springs that he visited, did he obtain the slightest relief; and, after remaining from home two months, he returned in a state almost bordering on despair.

To add to his affliction, he about this time began to be annoyed with a constant pain in the region of the antrum of the affected side. This, in connection with a soreness in a tooth immediately beneath, which he had felt throughout the whole course of his protracted and complicated disease, but which had not

until now been sufficiently great to attract particular observation, soon led to the discovery of the cause both of the nasal and neuralgic affections, and also to the means by which they were finally cured. The pain in his jaw continuing to increase, and from its resemblance to toothache, he was induced, September 9th, 1839, to apply to me for advice. From the description which he gave of it, and the other circumstances connected with the case, the belief that the antrum was diseased, and that a morbid condition of some one or more of his teeth or their sockets had been chiefly instrumental in their production, at once forced itself upon me. With a view of satisfying myself more fully on this point, I gave his mouth a careful examination. His teeth, at least so far as their crowns were concerned, were all free from disease; but the socket of the first left superior molaris, which was that of the sensitive tooth, was considerably wasted—the tooth itself, particularly its outer and posterior surfaces, thickly coated with tartar, slightly loosened, and partially protruded from the jaw, whilst the surrounding gum was inflamed and spongy. The tooth having thus, as it would seem, from some cause or other, become obnoxious to the parts within which it was contained, and as it had no antagonist, its removal appeared to constitute the first and principal indication of cure. To this, upon its being advised, he readily submitted. The operation was followed by a sudden gush of thin, foetid matter, from the antrum, which communicated with the socket of the tooth by an opening sufficiently large to admit of the easy introduction of the end of a small goose quill, and a subsidence of pain. The cause of his complicated malady was now revealed. The roots of the tooth were found to be greatly enlarged by exostosis.

The intervening transverse and longitudinal alveolar walls had been destroyed, and the place which they had formerly occupied filled with fungus. The edges of the surrounding wall were considerably wasted, and its surface interiorly rough and enlarged.

A strong solution of *argentum nitratum* having been applied to the diseased socket, by means of a camel's hair pencil, and the antrum syringed out with diluted tinct. myrrh, which last was directed to be repeated twice a day as long as the opening into that cavity should remain unclosed, the balance of the cure was entrusted to the restorative energies of the economy.

The following day he left the city, and I heard no more of him for six weeks; at the expiration of which time he again visited it, and called to inform me of the amendment that had taken place in his condition. He was now able to breathe through his left nostril almost as freely as the right—the discharge from it was greatly diminished, and of a more healthy character. He had had but one return of his

neuralgic affection, which occurred the fourth day after the removal of the tooth, and was less severe than any of the former paroxysms. The opening into the antrum had closed, and the socket was rapidly filling with healthy granulation.

December 3d, I again had the satisfaction of seeing him, and of being informed that every vestige of his nasal and neuralgic affections had disappeared.

*Remarks.*—The circumstances connected with the history of the foregoing case would seem to justify the conclusion that the irritation produced by the enlargement of the roots of the tooth, had given rise to a morbid excitement in the mucous membrane of the antrum maxillary—that this had extended to that of the left nostril, where the parts being more exposed to external irritating agents, had taken on a new and more aggravated form of disease; and that the neuralgia was the result of the irritation in the nose, antrum, or socket, and most probably the last. How far the deposition of tartar that had formed on the tooth may have been accessory to the exostosis, is a question perhaps not easily solved. That it might produce such an effect can very readily be conceived, for when we take into consideration the morbid influence the presence of this substance frequently exerts upon the secretions of the mouth, the gums, and alveolar processes, it will not appear at all strange that it should give rise to this. The disease being dependent on inflammation of the periostia of the roots of the teeth, may be brought on, when favoured by a constitutional tendency, by any thing producing preternatural excitement in these membranes, and that salivary calculus often does this, is a fully recognised axiom in dental pathology. But how far it may have been concerned, either primarily or secondarily, in its production in this instance, I will not take upon myself to determine, inasmuch as there was one other circumstance connected with the history of the case that may have been the primary cause of the whole disturbance. That was, the want of an opposing tooth against which for this to act; and it may be well here to remark, that whenever this happens, especially to a superior molaris; and in the present case it had existed, as I was informed, for about seven years, the surrounding gum is apt to become inflamed, the periostium of its roots morbidly excited, and the socket to waste, and sometimes to become gradually filled with ossific depositions,\* as though na-

ture, conscious that the organ was of no further use, exerted her energies to expel it from the jaw. This tendency every dentist of observation and experience must have noticed; and Mr. Koecker, a distinguished European practitioner, in accordance with what would thus seem to be a law of the economy, recommends the extraction of all such teeth; but, as there are frequent instances where, by proper attention to their cleanliness, they may be permitted to remain with impunity, this advice should not always be followed.—*Maryland Med. and Surg. Journ.*

#### FOREIGN SUMMARY.

*Apoplexy of the Eyes.* By Dr. HOLSCHER.—A robust country girl, of eighteen, was hard at work in the harvest field one hot day; and had been frequently stooping to bind up sheaves, when, without any external cause, but with great congestion of blood about the head, she became suddenly blind. When examined a short time after, all sight was lost; the eyes were fixed and felt tense; the conjunctiva was very vascular, there was considerable congestion about the head, and the carotid arteries pulsated strongly. The pupils were widely dilated, and did not in the least contract even when a strong light was brought close to the eye. In the right eye, on viewing it from the side, a slight red tinge of the aqueous humour was perceptible; and with a lens a very small coagulum of blood was discovered lying at the bottom of the anterior chamber. The patient, except for her blindness, was in the same robust health which she had always enjoyed.

Feeling no doubt that the sudden loss of sight was produced by an equally sudden congestion of the eye by blood rushing, as in apoplexy, into the vessels of the choroid and retina, and producing paralysis of the latter, the author ordered a bleeding, to sixteen ounces, from the arm, cold lotions to the head, a saline foot-bath, saline medicines, and an extremely low diet. By a continuance of similar means, with the addition of mercury and a permanent blister at the back of the neck, the patient was so far recovered on the fourth day as to be able to distinguish objects placed before the eyes, and in three weeks she returned to the country with her sight perfectly restored.—*Brit. and For. Med. Rev., from Hannoversche Annalen.*

He has also conversed with several of his professional brethren, who say they have observed the same thing; and among the number, Dr. H. H. Hayden, of this city, a gentleman whose scientific attainments and professional acumen would render any deception in the matter altogether improbable.

The establishing of this fact, though somewhat irrelevant to the subject under discussion, was deemed necessary, in order to show the morbid effects that are frequently induced in the gum and socket of a superior molaris, by the loss of its antagonist.

\* The doctrine that teeth, after having lost their antagonists, are sometimes partially displaced by the gradual filling up of their sockets at the bottom with ossific matter, is denied by some; but the writer of this has met with several instances, as was clearly ascertained after the extraction of the teeth, where depositions of bone had actually taken place, and in five or six cases in considerable quantities.